

## ABSTRACT

The present invention provides a transmitter conforming to the EER method in a wide frequency band at high efficiency. For this purpose, the amplitude component of a modulated signal is input to the power supply terminal of a high-frequency power amplifier 130, the I and Q quadrature signals thereof are input to the high-frequency input terminal of the high-frequency power amplifier 130, and the original modulated signal is obtained from the output of the high-frequency power amplifier 130. A collector voltage is supplied from DC-DC converter group 615 having output voltages being different sequentially to an emitter follower 729 via a switch group 621. One of the outputs of the DC-DC converters 616 to 620 is selected depending on the level of the amplitude component as the collector voltage and supplied to the emitter follower, whereby the difference between the emitter voltage of the emitter follower 729 and the collector voltage of the emitter follower 729 is made smaller and the efficiency of the emitter follower 729 is raised; furthermore, the power supply voltage of the high-frequency power amplifier 130 is voltage-converted by the emitter follower 729, whereby operation in a wide frequency band is made possible.